We claim:

1.) A method for treating soot-containing waste water comprising the following steps:

a) adding at least one of a surfactant or a flocculating agent to a soot-containing waste water stream and then flowing the soot-containing waste water stream into a clarifier;

b) settling the soot from the waste water in the clarifier to form a settled soot;

c) flowing the settled soot from the clarifier into a first reactor basin having an average hydraulic retention time of at least 120 hours;

d) adding to the first reactor an activated sludge; and

e) degrading the settled soot in the first reactor basin.

2.) The method as recited in Claim 1 wherein step a) comprises adding at least one of a polyamine, a polyamide, an alkoxylated alcohol, or an anionic polymer to the soot-containing waste water stream.

3.) The method as recited in Claim 1 wherein step a) further comprises adding from 10 to 15 parts per million of the at least one of a surfactant or a flocculating agent to the soot-containing waste water stream.

4.) The method as recited in Claim 1 wherein step b) further comprises settling the soot at a rate of at least 2.5 meters per hour in the clarifier.

5.) The method as recited in Claim 1 wherein step b) further comprises settling the soot to a concentration of from 3.0 to 8.0 weight percent solids.

6.) The method as recited in Claim 1 wherein step c) further comprising flowing the settled soot from the clarifier into a first reactor basin maintained under aerobic conditions.

7.) The method as recited in Claim 6 comprising the further step of maintaining a dissolved oxygen concentration in the first reactor basin at or above 1.0 mg/L to maintain the aerobic conditions.

8.) The method as recited in Claim 7 comprising the further step of maintaining the dissolved oxygen concentration in the first reactor basin at from 1.0 to 15.0 mg/L.

9.) The method as recited in Claim 1 wherein after step e) the degraded settled soot is dewatered.

10.) The method as recited in Claim 9 wherein the degraded settled soot is dewatered using a belt press.

11.) The method as recited in Claim 9 wherein the degraded settled soot is centrifuged to dewater the degraded settled soot.

12.) A reactor system for treating soot-containing waste water comprising:

a soot clarifier in communication with a soot-containing waste water stream;

a first reactor basin having an average hydraulic retention time of at least 120 hours in communication with said soot clarifier for receiving a settled soot from said clarifier and having a mixed liquor therein; and

an activated sludge input to said first reactor basin.

13.) The reactor system as recited in claim 12 further including at least one dissolved oxygen monitor, said monitor detecting a dissolved oxygen level in said mixed liquor of said first reactor basin.

14.) The reactor system as recited in claim 12 further including an oxygen input connected to said first reactor basin.

15.) The reactor system as recited in claim 14, wherein said oxygen input comprises a floating aerator, an aerator platform, or a combined jet aerator and mixer.

16.) The reactor system as recited in claim 12 further comprising a mixer within said first reactor basin, said mixer for mixing said mixed liquor.

17.) The reactor system as recited in claim 12 further comprising one of a belt press or a centrifuge in communication with said first reactor basin.

18.) The reactor system as recited in claim 12 further comprising a second clarifier containing waste water and sludge; said second clarifier connected to said first reactor basin by a sludge line, said sludge line comprising said activated sludge input to said first reactor basin.

19.) The reactor system as recited in claim 18 further comprising a pump located between said second clarifier and said first reactor basin and in communication with said sludge line, said pump pumping said sludge from said second clarifier into said first reactor basin.

20.) The reactor system as recited in claim 17 further comprising a second aerobic reactor basin, said second aerobic reactor basin in communication with said soot clarifier and said second aerobic reactor basin in communication with said second clarifier and providing output to said second clarifier.

21.) The reactor system as recited in claim 20 further comprising an anoxic reactor basin, said anoxic reactor basin in communication with said soot clarifier and in communication with said second aerobic reactor basin, said anoxic reactor basin receiving input from said soot clarifier.